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ABSTRACT

The education and training of health personnel should be planned as part of the overall development plan of the country and with a view to helping solve the health problems of the countries in which they live and work. Such a policy entails the establishment of close collaboration between the health authorities and those responsible for education, the social services, and economic development, and with community total health manpower requirements of the country so as to provide a balanced mix of health personnel appropriate for the solution of national health problems. Physicians should therefore be trained in the local environment to ensure orientation to the country's problems and needs. Guidelines are provided for the planning and establishment of medical schools or centers for the health sciences. Integrated centers are preferred to encourage the training of the different categories of health personnel in the same institution. Before a decision is taken to go ahead with such a project, provision should be made to ensure that the necessary human, material, and financial resources are available not only for initiating the project but also for its long-term maintenance. (Author/KE)

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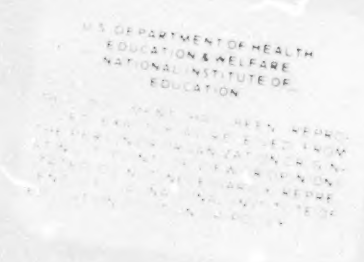
The Planning of Schools of Medicine

ED119535

FOR REVIEW
POUR ANAL

Report of a
WHO Study Group



Technical Report Series
566

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World Health Organization, Geneva 1975

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* * *

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No. 566

THE PLANNING OF SCHOOLS OF MEDICINE

Report of a WHO Study Group

WORLD HEALTH ORGANIZATION

GENEVA

1975

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WHO STUDY GROUP ON THE PLANNING OF SCHOOLS OF MEDICINE

Geneva, 10–16 September 1974

Members :

Dr T. J. Danaraj, Dean and Professor of Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

Dr S. R. A. Dodu, Professor of Medicine and Dean, University of Ghana Medical School, Accra, Ghana (*Rapporteur*)

Dr L. A. Fisher, Director, Division of Educational Planning and Assessment, Faculty of Medicine, University of Calgary, Calgary, Alberta, Canada

Professor J. F. Isakov, Head of the Centre Board for Educational Establishments, Ministry of Health of the USSR, Moscow, USSR (*Vice-Chairman*)

Dr G. L. Monekosso, Director, University Centre for Health Sciences, Yaoundé, United Republic of Cameroon

Dr Moshe Prywes, President, Ben-Gurion University of the Negev, Beersheba, Israel (*Chairman*)

Secretariat :

Dr B. K. Anand, Regional Adviser, Health Manpower Development, WHO Regional Office for South-East Asia, New Delhi, India

Dr R. H. O. Bannerman, Chief Medical Officer for Medical Education, Division of Health Manpower Development, WHO, Geneva, Switzerland (*Secretary*)

Dr Luiz Carlos Lobo, Latin-American Center for Educational Technology on Health, (Federal University of Rio de Janeiro — Pan American Health Organization/ World Health Organization) Rio de Janeiro, Brazil

Dr J. Vysohlid, Institute for Postgraduate Education in Medicine and Pharmacy, Prague, Czechoslovakia (*Temporary Adviser*)

THE PLANNING OF SCHOOLS OF MEDICINE

Report of a WHO Study Group

INTRODUCTION

A WHO Study Group on the Planning of Schools of Medicine met in Geneva from 10 to 16 September 1974. Dr W. H. Chang, Assistant Director-General, opened the meeting on behalf of the Director-General. He emphasized that there is an increasing need to provide guidelines for, and to develop innovative approaches to, the planning and establishment of institutions for the education of physicians and other categories of health personnel able to help solve the health problems of the countries in which they live and work. As a consequence, it is essential to evolve systems of education different from the traditional ones. The work of this Study Group was in some ways a continuation and an extension of that of the WHO Expert Committee on the Planning of Medical Education Programmes.[a]

Since education of health personnel could be regarded as an instrument for the implementation of long-term plans for improving the quality of life of any community, it is important that the planning should be undertaken not in isolation but as a part of the overall development plan of the country. Close collaboration should therefore be ensured between the health authorities and those responsible for education, the social services, and economic development, and with community leaders; the participation of representatives of the community in the planning and development of health educational institutions will ultimately develop a true sense of belonging and participation.

A systems approach to the planning of the education and utilization of health personnel would bring about a necessary innovation in the education of multiprofessional teams of health personnel and would help to make them more responsive to changes in the needs of society.

Basic and further education should be regarded as phases of one continuous process, and for this purpose institutions that provide an integrated type of education for multiprofessional teams would appear to be most suitable. In such situations the active participation of teachers and students in health care delivery systems would lead to better appreciation of the

[a] WHO Technical Report Series, No. 547, 1974.

sociocultural background of the community. Whenever appropriate, more information and exposure to indigenous systems of medical practice should be sought.

In considering the terms of reference of the Study Group, it was agreed that the terms "school of medicine" and "medical school" did not necessarily limit the scope of the study and it was decided to consider the factors influencing the planning of new medical schools in the context of the wider concept of centres of health sciences. However, in the context of these centres, the Group dealt mainly with questions relating to the education of physicians. It felt that a group more representative of the other professions involved should be given the opportunity to express its views on multiprofessional training. The Group decided also to relate its deliberations primarily to the planning of new medical teaching establishments in developing countries.

1. REASONS FOR DECISION TO PLAN AND ESTABLISH A MEDICAL SCHOOL

The primary reason for establishing a new medical school is to increase the number of physicians but this should not be an end in itself. The number and type of health personnel required is determined by the national health needs and the number of physicians trained must therefore be related to the total health manpower requirements of the country, so as to provide a balanced "mix" of health personnel appropriate for the solution of national health problems. It is for this reason that the Study Group emphasizes the concept of the centre for health sciences as a means of achieving a holistic approach to the production of health personnel.

1.1 Major considerations

In general, the reasons usually advanced for the decision to found a medical school may be summarized under the following headings :

—To increase the number of physicians :

(*a*) to provide better health coverage for the population ;

(*b*) to meet demands for improved health services.

—To train doctors in the local environment :

(*a*) to ensure orientation to the country's problems and needs ;

(*c*) to carry out research and studies into problems of local and national concern ;

(*c*) to organize continuing and postgraduate (postbasic) education;

(*d*) to reduce or eliminate the "brain drain" of physicians by providing education and training better adapted to local conditions.

—To introduce new ideas and patterns in medical education, such as:

(*a*) the merging of an integrated system of comprehensive health care for the entire population with academic responsibility for medical education;

(*b*) orientation towards recognized needs and demands;

(*c*) interaction between the necessary changes in the health care delivery system and medical education;

(*d*) improvement in the health team approach by the provision of:

(i) multiprofessional training;

(ii) a more efficient "mix" of medical and auxiliary personnel.

—To provide a focus for the development and maintenance of high professional standards.

—To demonstrate to the public the government commitment to the upgrading of the level of health care.

—Social pressure resulting from the excess of eligible students wishing to study medicine over the number of places available in the existing medical schools.

—Political influences related to prestige.

—Pressure from professional and academic groups, e.g., the medical profession and universities.

1.2 Ancillary considerations

1.2.1 *Conditions required for starting a new medical school*

Although some earlier WHO publications[a, b] had specified certain conditions necessary for the establishment of a new medical school, the Study Group recognized that if all countries waited to achieve all these conditions, medical schools would hardly ever be started. The conditions should be regarded only as guidelines and there was no need to restate them.

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[a] WHO Technical Report Series, No. 547, 1974 (Report of a WHO Expert Committee on the Planning of Medical Education Programmes).

[b] *Aspects of Medical Education in Developing Countries*, Geneva, World Health Organization, 1972 (Public Health Papers, No. 47).

1.2.2 *Regional centres for medical training*

The Group considered the possibility that a group of countries in a defined geographical area might contribute to the establishment of a single training institution to serve their needs. It was felt, however, that under present conditions such an arrangement is not likely to be fully satisfying to all the participating countries, since many countries wish to have their own medical school. The idea might be more acceptable in the field of postgraduate medical training where it might be possible to establish centres of excellence in certain disciplines in each of the cooperating countries, so that each country makes a contribution in at least one field of postgraduate medical training. Such an arrangement should, of course, be reviewed periodically.

1.2.3 *Inadequate reasons for establishing a medical school*

While there are frequently justifiable and valid reasons for establishing a medical school, the Group recognized that there are also situations in which such a development would be inadvisable. It was considered unreasonable to establish a medical school exclusively for physician training in the following situations :

(*a*) when the existing school(s) can train all the physicians required ;

(*b*) when it is possible and feasible to start a centre for health sciences rather than a traditional medical school ;

(*c*) when a country's economy could not support the expected recurrent expenditure, even when the initial capital is available from external sources ;

(*d*) when the country could not absorb effectively the number of physicians produced, in terms of employment opportunities and acceptable conditions of practice, including the provision of other health personnel, medical supplies and equipment ;

(*e*) when the additional health care coverage required can be provided better by other personnel.

2. OBJECTIVES OF A MEDICAL SCHOOL

The objectives of a medical school are often taken for granted. Well established medical schools seem to " know " the reason for their existence ; and the definition of objectives for a newly created establishment is often left to be decided by the foundation staff. In fact, the objectives of a medical school should be the subject of repeated consultations between medical

teachers, university authorities, the government ministries responsible for education and for health, the political authority, and representatives of the public to be served by the physicians who graduate from the medical school. When a new school is being planned, a planning commission encompassing several or all of these varied interests is highly desirable. Such a planning commission should be appointed and given sufficient time to define the institutional goals of the proposed medical school and the functions it will perform, before the first students are admitted.

2.1 Institutional objectives

The overall goals of the medical school must clearly be related to the health care needs of the country or the community which the school is expected to serve.[a]

2.1.1 *Education of health personnel*

The medical school is expected to plan, and assume responsibility for, the training and education of physicians and other health personnel as follows :

(*a*) to produce physicians able and willing to serve the community ;

(*b*) to participate in the training of teachers of health personnel, including physicians, dentists, pharmacists, nurses, midwives, laboratory technologists ;

(*c*) to participate in or assume responsibility for the planning and training of the health personnel that form the health team and to ensure thereby a balanced " mix " of health personnel appropriate to the needs of the country or community ;

(*d*) to assume responsibility for postgraduate and continuing education of health personnel ;

(*e*) to acquaint health personnel with the possible role and contribution of traditional or indigenous medical practices in the comprehensive health care delivery system of the community.

2.1.2 *Health care delivery*

The medical school is expected to participate in the delivery of health care and in the planning, coordination, and development of an effective health care delivery system to the community at all levels as follows :

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[a] An example of the institutional goals of a physician training programme is appended as Annex 1.

(*a*) to give priority to primary (first level) health care ;

(*b*) to participate in or accept responsibility for the comprehensive health care of a geographically defined area of the country as distinct from the organization of research projects in a specific area ;

(*c*) to participate actively in the implementation of the national health policy.

2.1.3 *Research and studies*

The medical school is expected to engage in, and to promote, community oriented clinical, biomedical, and operations research in support of its broad institutional goals. For this task it is necessary for the school to collaborate with a variety of agencies and to use a multidisciplinary approach wherever appropriate :

(*a*) to identify the major community health problems and to collect data for determining the health status of the community and the health manpower needs ;

(*b*) to carry out research, through model or trial health care delivery systems, for determining the system best suited to the community ;

(*c*) to promote clinical, behavioural, epidemiological, and biomedical research with due consideration of the possible application of such research in solving the community health problems ;

(*d*) to carry out research into existing systems of traditional or indigenous medicine, for the purpose of determining :

—the extent and nature of their contribution to health care,

—the role that they could fulfil in the general health care delivery system, and

—to what extent health personnel are to be oriented to indigenous systems as part of their formal training ;

(*e*) to carry out educational research aimed towards the optimal design, implementation, and evaluation of the teaching-learning process in health ;

(*f*) to perform operational research in order to improve educational planning and the management, development, and implementation of new curricula and thus prepare the manpower needed to implement the national health plan ;

(*g*) to carry out research on medical information and communication sciences.

2.2 Educational objectives

In considering this topic the Group noted that a great deal of information was already available [a] and since it could not deal with the educational objectives relative to all the different types of health personnel it decided merely to emphasize some principles that could be applied generally.

Educational objectives should :

(*a*) be written in behavioural terms and should include statements on the knowledge, skills, and attitudes that the students would be expected to demonstrate at the completion of their formal period of training ;

(*b*) determine the design of learning experiences and evaluation procedures ;

(*c*) be decided upon before the first students are admitted.

3. PLANNING

3.1 Planning commission

When the question of creating a medical school or centre for health sciences is raised, it is necessary first to set up a planning commission. This commission should be broadly based, and composed of representatives of the university, the health and educational authorities, representatives of development and planning agencies, the medical and other related professions, leaders of the community, etc. If international assistance is being sought, representatives of the responsible body should be invited to participate.

The commission will be responsible for studying the feasibility of the project, especially in relation to the future health manpower needs [b] and the proposed organization or reorganization of the health service structure and activities, with a view to using the existing facilities in the most efficient manner in the interests of solving the country's major health problems.

For this purpose the commission should have access to all available information in the following fields: the present socioeconomic situation and forcasts for the future; trends in demography, morbidity, and mortality; available human, financial, and material resources ; and the system of health

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[a] *Development of educational programmes for the health professions*. Geneva, World Health Organization, 1973 (Public Health Papers, No. 52).

[b] WHO Technical Report Series, No. 481, 1971 (Report of a WHO Scientific Group on the Development of Studies in Health Manpower).

care delivery for the prevention and treatment of disease, including rehabilitation. The feasibility of the project should be reviewed in relation to the national health policy. The content of the study should not be limited to the traditional matters relating to the health sector but should take into consideration other factors influencing the health of the community, such as the environment, social welfare, housing, education, nutrition, and agriculture.

The commission should be concerned not only with the additional medical manpower requirements, but also the needs for all other types of health personnel so as to obtain the right " mix " for effective health teams.

The planning commission may create subcommittees charged with specific questions, such as general educational philosophy and goals of the school, finance, physical facilities, recruitment, and training of national staff. After reviewing all these questions in depth with the various authorities concerned, a comprehensive report should be prepared and submitted to the appropriate governmental or decision-making body.

3.2 Founding dean

The founding dean should be selected by a national committee representative of the university and the agencies responsible for health care delivery in the country.

3.2.1 *Criteria for appointment of the founding dean*

It is highly desirable to recruit a national as the first dean of a medical school even if candidates from other countries with higher academic qualifications are available.

The dean should be, as far as possible, a physician with organizational ability and managerial skills. He should be a man of integrity with personal qualities and attributes that command the respect of both his colleagues and the community. It is desirable that the first dean should have university teaching and administrative experience and should be interested in the education and training of health personnel.

3.2.2 *Term of office of the founding dean*

The first dean should remain in the post until at least 2 years after the first students have graduated and preferably for an initial period of 6 years. During this period the dean would have the opportunity to establish firmly the institutional philosophy of the school, to evaluate the educational programmes that have been established, and to identify and train possible future administrators to replace him.

3.3 Staff training

The founding dean must give immediate and continuing attention to the provision of an adequate number of teaching staff for the proposed new medical school or health sciences centre. His first task should be to recruit nationals and only if that is not possible should staff be recruited from other countries. Senior staff with suitable experience should be recruited through the medical press and the appropriate agencies so that a skeleton staff is assembled to initiate the new medical school. At the same time, and even before the building plans are developed, an academic staff training (or teacher training) scheme should be instituted. This scheme should continue for a minimum of 10 years. It should provide for a minimum of 2 years training for promising young local graduates of good academic potential.

The purpose of the training programme should be to improve knowledge and experience in the basic sciences and in clinical or other health disciplines, and to provide training in research methods and teaching. At first the training would have to be done in another university, but later, as some departments are established, part of the training could be undertaken locally.

While the personal emoluments are paid by the recruiting university, the cost of travel, tuition fees, and other incidental expenses may be covered by fellowships granted by various national, international, and other bodies.

After satisfactory completion of the training, the trainees are appointed to regular staff positions, but it is advisable that their training should continue on a departmental basis for a further 3 years.

When the first physicians graduate from the school, the more promising graduates will doubtless join the training scheme for teachers.

The training programme should also include key personnel in the teaching hospital such as the administrator, the chief matron, the chief medical records officer, the chief medical social worker, etc.

3.4 Medical school development committee

The founding dean would be aided in his duties by a medical school development committee, of which he would be a full member. Depending on circumstances, he could be either the chairman or the executive secretary. This committee should be small but should include representatives of the university, and of the ministries of health, education, development planning, social security, finance, etc. The representatives of any international or bilateral agency concerned should also be consulted as required.

The medical school development committee will advise the dean on all aspects, especially on the development of the buildings and equipment, on budgetary and financial matters, and on relationships with other institutions.

As soon as academic staff are appointed they will take over full responsibility to advise the dean on the definition of educational objectives, curriculum design, student selection, evaluation, etc.

3.5 The setting of the medical school

In terms of philosophy and academic relationships, the educational objectives of the medical school are better promoted in a university setting and the school should therefore be situated close to a university, while at the same time retaining strong affiliations with the ministry of health and other agencies responsible for health care delivery, in order to ensure that it produces the type of health personnel required to meet the health needs of the community.

The Group considered the possibility of developing and maintaining a medical school under the aegis of the ministry of health. While it was felt that in some ways this would facilitate the implementation of the national health policy to which the medical school is committed, in many developing countries the ministries of health are already fully occupied with other matters of high priority. In these countries it is particularly desirable that a new medical school should be developed under the aegis of an existing university.

3.6 Departmental structure

3.6.1 *Medical schools*

The structure of a medical school or university centre for health sciences should be responsive to the institutional goals and educational policies, and should take account of the different categories of health personnel to be trained. It should be flexible enough to allow for growth and expansion of teaching, service, and research activities, and for innovations in the teaching-learning process. The use of modern managerial methods should be considered at an early stage.

Most medical schools have a dean's office, which administers common facilities and funds, as well as a number of departments representing various disciplines and with different degrees of autonomy. The organization should allow a reasonable degree of central decision-making with as much active participation as possible of the heads of departments and other teaching and administrative staff.

3.6.2 *Centres for health sciences*

With the new trend of establishing multidisciplinary centres for health sciences an appropriate structural adaptation is desirable to permit the

organization of programmes for the training of a wide range of health personnel who would work as a team. There are several ways of structuring such a centre ; in all cases the staff and certain common facilities are shared. The following models were considered :

(*a*) A dean assisted by coordinators or vice-deans responsible for relatively autonomous schools of medicine, nursing, dentistry, pharmacy, laboratory technology, etc. Each school would have separate physical facilities, and run its own budget, bu. the overall objectives of the centre are coordinated by the dean or director of the centre. The staff of one school may teach in one or more of the other schools.

(*b*) A dean and a centralized administration, and a sharing not only of the staff but also of the same physical facilities for the training of different members of the health team. There would be courses (teaching programmes) in medicine, nursing, laboratory technology, etc. organized by special curriculum committees, each presided over by a member of staff of the appropriate professional category. There is no administrative or physical identification of schools even though professional identity of the different groups is preserved.

(*c*) A dean, assisted by coordinators or vice-deans responsible for well integrated schools of medicine, nursing, dentistry, pharmacy, laboratory technology, etc. These schools share as much as possible the same physical facilities and may have a common budget.

The choice between the above models would depend upon national legislation concerning certification or the issuing of diplomas, the administrative structure of the university, and the pattern of government administration.

3.7 Budgetary arrangements for the medical school

The procedure for budgetary allocation will depend on local practices, but the following points should be taken into consideration :

(*a*) The double commitment of a medical school to both education and health care delivery makes it imperative to make budgetary arrangements that will enable the medical school to draw its financial resources from both the university and the agencies responsible for health care delivery.

(*b*) In countries where a university grants committee or equivalent body exists, it is recommended that the medical school should channel its financial requests directly to the grants committee, thus establishing a budget separate from that of the university as a whole.

(*c*) The medical school budget should have clear allotments to cover the school's educational, service, and research commitments.

3.8 Curriculum development

First it is essential to define the type of graduate required in terms of the knowledge and skills they should acquire and the attitude they should have to work and further professional training. A committee representing the views of the teaching staff should be convened to make such a definition. The second task for this committee should be to determine the knowledge, skills, and attitudes required in students entering the medical school from premedical educational programmes. This may involve a considerable amount of research into the levels of achievement of students seeking admission. Once the requirements for graduates and entering students are clearly defined, the differences in knowledge, skills, and attitudes must constitute the content of the proposed programme of the medical school.

In determining content a useful procedure is to start from the specific, expected, terminal characteristics of the graduate and to work back from these to define the average time needed for students to achieve the stated objectives. Regardless of the length of the training period, the programme must be designed so that it can be separated into components called courses. These courses in turn may be subdivided into units of instruction requiring a few sessions each.

Having discussed the broad structure and organization of the curriculum, the teaching staff of the new medical school should then turn to the compilation of related items into curriculum units, and these in turn into courses. Then the staff would need to consider the different modes of learning available to students : reading, viewing, listening, questioning and discussing, observing others, and the practice of requisite skills under observation. These modes of learning are appropriate, it must be remembered, to different kinds of objectives. Therefore, the curriculum units must be developed and written to include the prerequisites and objectives of each unit, the description of the learning experiences that would be made available to the students, and illustrations of procedures to evaluate the objectives of the unit.

An evaluation programme must be designed to match the instructional programme. It should stem from the same series of objectives that has been used to design the total curriculum of the medical school, and should call for each student to give evidence, in terms of actual performance, of the degree to which he or she has been able to attain the objectives. Once enough evidence over a given period of time has been collected on the performance of each student, this information would be reviewed with the students so that they could plan future activities in the school to capitalize

on their individual strengths and compensate for their individual weaknesses in performance. Each student might require an individual programme of remedial studies to bring him up to the required standard. Fig. 1 summarizes the factors influencing curriculum design and their interrelation with the development of an instructional programme.

3.8.1 *Organization of the academic staff for curriculum development*

With regard to the organization of the academic staff for curriculum development, the value of the following structure was recognized :

(*a*) *A full-time senior member of staff in charge of curriculum planning*. He should be a person with knowledge and experience who will devote most of his time to curriculum development and to organizing the staff into multiple task forces responsible for the planning of segments (e.g., courses) of the curriculum ;

(*b*) *A curriculum committee* consisting of a small number of staff members with a broad interest in and strong commitment to curriculum development, a representative of the agency responsible for health care, student leaders from an existing medical school, and an educational specialist. There should also be provision for co-opting consultants in special fields as required. The task of the curriculum committee would be to review, coordinate, and analyse the curricular plans of groups of members of staff responsible for planning the courses. The committee will use as guidelines the essential parts of the institutional goals, the qualities expected in students graduating from the school and the learning resources available to the students ;

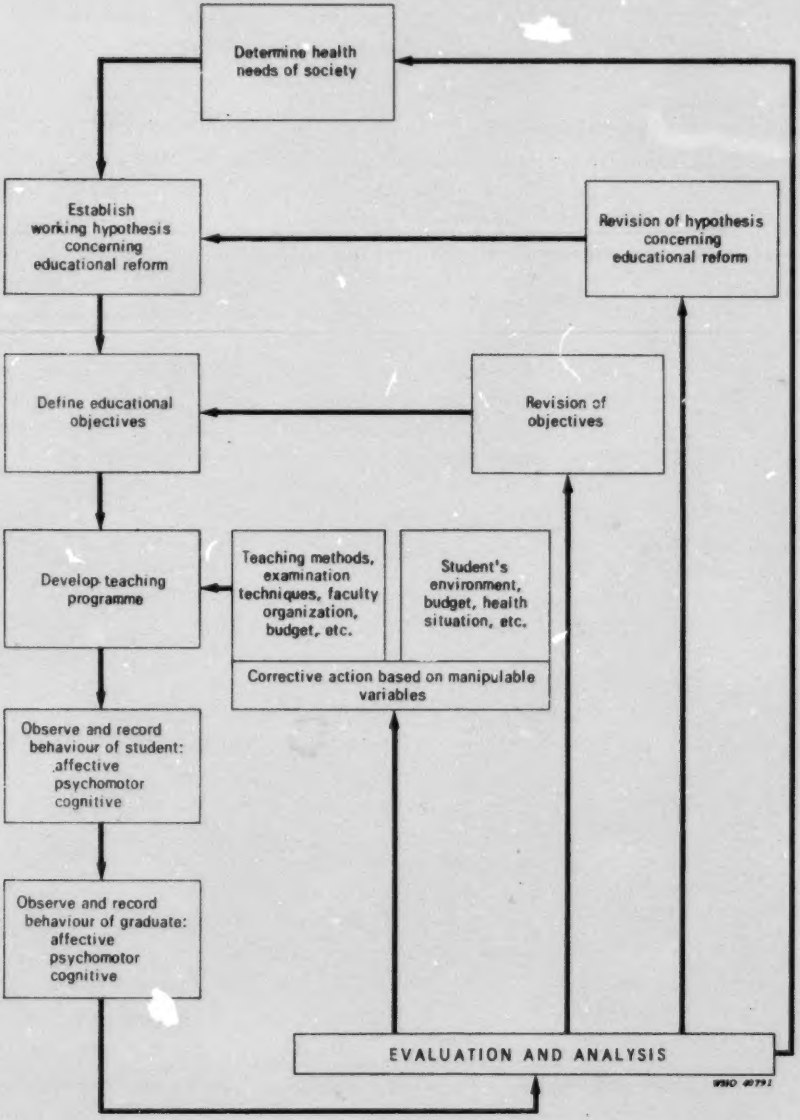
(*c*) *Small groups* of members of staff to plan courses. These groups would use consultants from various fields to assist them in their planning, but each group would have primary responsibility for developing an initial detailed course plan.

The primary goals of the curriculum committee would be to define the core learning to be mastered by the students, to describe different ways of accomplishing this learning, and to plan the evaluation of the students' performance at all stages of the curriculum. On issues involving conflict of views the curriculum committee would decide on the basis of a majority decision, on the principle that decisions affecting the staff should be influenced by them.

3.9 Staff appointments

In making staff appointments certain principles and guidelines have to be followed. The following recommendations are offered :

FIG. 1. FACTORS INFLUENCING CURRICULUM DESIGN, LEVELS OF EVALUATION, AND CORRECTIVE ACTION


Determine health needs of society
Establish working hypothesis concerning educational reform
Revision of hypothesis concerning educational reform
Define educational objectives
Revision of objectives
Develop teaching programme
Teaching methods, examination techniques, faculty organization, budget, etc.
Student's environment, budget, health situation, etc.
Corrective action based on manipulable variables
Observe and record behaviour of student: affective psychomotor cognitive
Observe and record behaviour of graduate: affective psychomotor cognitive
EVALUATION AND ANALYSIS

(*a*) Whatever the mechanism of staff appointment, the teachers of the medical school should be well represented on the academic appointments committee.

(*b*) The selection for appointments to academic clinical positions should be made by a university committee on which the agencies responsible for health care delivery are represented.

(*c*) The system should be such as to permit the use of clinical staff in the teaching of basic sciences and as a corollary it should be possible for basic science teachers to participate in clinical activities.

(*d*) The appointment of properly trained and skilled administrators for budgetary and fiscal matters, personnel management, etc., should be given the highest priority at the earliest stage of institutional development, comparable in importance to that of appointments to senior academic posts.

(*e*) As far as possible the senior positions should be filled by nationals.

3.9.1 *Criteria for appointment*

The usual procedure is to assess candidates for university appointments in terms of research activity (publications) and teaching and professional experience. Due weight should be given to the teaching and service components and not only to research, and a prospective member of staff should have proved himself in any one or more of the three fields. It is suggested that the quality of any teaching materials produced by the teacher and statements of intent in relation to how he sees his role in the promotion of institutional goals should be assessed and given due recognition.

Similar criteria may be used to assess claims to promotion.

3.9.2 *Appointment of general practitioners as teachers*

In view of the medical school's commitment towards strengthening primary health care in the community, it is recommended that general practitioners who are in charge of delivery of primary care outside the hospital setting should participate in the school's teaching activities and be required to fulfil specific teaching roles. They should, therefore, be given an appropriate academic appointment and be recognized as full members of the teaching staff.

3.9.3 *Duration of appointment*

A distinction must be made between (*a*) administrative and (*b*) academic appointments.

The committee agreed that administrative appointments (e.g., head of department or chairman of a division) should be held for fixed periods of time to permit change of leadership at periodic intervals.

With regard to academic appointments, the prevailing practice in many countries is to offer appointments for life. This is acceptable provided it is preceded by a suitable probation period and is restricted to the higher levels of academic appointments.

3.10 Selection and admission of students

It is recommended that a system of selecting students should be established, as open university enrolment procedures have led to very high attrition rates, poor academic results and a longer average time for professional training.

The selection of students should take into consideration not only academic performance but also the types of personality best suited to the future tasks and responsibilities of a physician.

Provision must be made to allow admission of students from rural areas and from lower socioeconomic backgrounds, and to reflect the different population groups in the country. Students not accepted for the medical course because of excessive demand should be oriented to other health professions in accordance with vocational guidance.

Admission of students. The following recommendations are offered for consideration :

1. A student selection system should be established, with a policy determined by an admissions committee having broad representation from the university, the health and allied professions, and the community.

2. The criteria for admission established by the committee should be clearly stated and should be known to all concerned.

3. National policies may influence recruitment into the profession, but such administrative arrangements should be frequently reviewed.

4. Admission policy should take into account as far as possible the ethnic, socioeconomic and other groups of a country, but the basic principle should be the absence of discrimination against any candidate on the basis of religion or race.

5. Special consideration should be given to candidates from other health professions.

6. A very strict system of evaluating selection methods should be established and the findings periodically studied by the admissions committee with a view to revising its procedures.

4. BASIC PHYSICAL PLANT

4.1 General considerations

A new medical school should be assured of buildings and equipment adequate to fulfil its goals. Several complex and interrelated factors have to be considered before deciding on its location and the size of the constituent parts required for teaching, research and patient care. These factors will vary in importance depending on the local situation. Hence, the following generalizations may not apply equally in all situations.

The capital cost of the physical plant for the medical school and the recurrent running costs require the full support of the government concerned from the earliest stages of planning. Usually the ministries of health and education are directly involved, often with the cooperation of other ministries.

A survey of the existing health care services in the area will determine what kind of additional services should be provided, how many hospital beds are required, and whether the hospital should function as a basic or a specialized hospital. What is important is that the students should be trained in a health care environment representative of the situation in the country and not in a hospital reserved mainly for postgraduate training. They should be exposed to all the types of equipment and facility used in the health care delivery system of the community, region, or country.

Although economic constraints more than anything else may determine whether a new medical school and teaching hospital can be built, adequate utilization of teaching and laboratory space and expensive equipment should be a guiding principle. Facilities should be shared wherever possible. Centralization of the diagnostic and other supporting facilities for patient care will also lower building and equipment costs.

The planners should consider not only the immediate health problems of the country or area, but also future trends, especially in the delivery of the health services. Decisions must be based on a projection of what might be required ten years after its completion. The architects and engineers, before starting to draw the blueprints, must understand the educational philosophy and institutional goals to be achieved. They should be prepared to work in close collaboration with the founding dean and the development committee.

4.2 Location and site

The location of a new medical school may become a controversial issue among existing universities, different communities, and the professional bodies. In some cases the best way of utilizing existing facilities may be to

site the medical school in a densely populated part of the country. In other cases, because of the benefits of improved health to a community and the economic advantages of a large student and staff population, the government's view may well be that the school should be located in a relatively underdeveloped area.

The geographical proximity of a medical school to a university campus is desirable, but at the same time there must be adequate space for future development. If financial considerations do not permit the building of the whole medical school at one time, the necessary land should be designated and reserved for future development.

The site of a new medical school may be predetermined by deciding to use an existing hospital for teaching the clinical sciences, so as to avoid the cost of building a new teaching hospital. Extensive modifications to provide student and research laboratories, classrooms and offices will be necessary and the cost may be so high that it becomes more economical and expeditious to build a new hospital. Furthermore, there may not be sufficient space in the vicinity of an established hospital.

The availability of patients for teaching is an important factor in the selection of a site and easy and direct accessibility for the public and the relation of the hospital to the medical school are important considerations in the placement and orientation of the hospital building on the available site.

Planning and building must be speedily done. Otherwise, the approved budget becomes insufficient to meet rising building costs.

At the outset of the planning, a modular system that allows flexibility of function should be agreed upon. Research into the functions of laboratories has indicated optimum length and width, a common standard of services related to bench lay-outs and partitions that are demountable. Agreement on standard units for teaching and research laboratories, classrooms, offices and specific areas in the hospital such as the wards will contribute to speed of building and lowering of costs.

4.3 Basic physical plant

4.3.1 *Basic physical plant required by a centre for health sciences*

There is an obvious need to provide a fixed base for training, service, and research, a base from which staff and students can extend their activities to the neighbouring community, to the province, or the rest of the country. However, experience has shown that it is more appropriate to build a basic physical plant that provides only a base, so that staff and students will be compelled to look outwards rather than inwards. Such a building, or set of

buildings, would be less expensive since its planners, appreciating that several activities would be best performed elsewhere, could economize on space and equipment. In fact, the basic physical plant would serve to complete any existing teaching and service facilities.

Two types of facility would be required : (*a*) basic university teaching facilities located on the university or medical school campus and (*b*) additional field facilities for practical assignments outside the campus. The first set belong to the university and the buildings are financed by the university ; the others, concerned with field facilities, should belong to the ministry of health, or other agencies, with whom the dean of the medical school should negotiate the modalities of use by staff and students.

4.3.1.1 *Basic university teaching facilities*. These form the physical base for students, staff, and other personnel and may include : administrative offices for the dean and his staff; offices for the organization of teaching programmes; lecture, seminar, and reading rooms; multipurpose teaching and research laboratories; amphitheatres; facilities for educational studies including educational technology; a library with reference books, periodicals, and instructional material ; recreation rooms and cafeteria ; storage space and facilities for transport and general technical and maintenance services.

For maximum efficiency at minimum cost it is proposed that three divisions or units should be established—biomedical sciences, clinical sciences and medicosocial sciences.

Biomedical sciences. The principal scientific disciplines in this division are the morphological, physiological, and pathological sciences. These are interrelated and have much equipment in common. The facilities should include office and laboratory units, with preparation laboratories where teaching exercises are prepared and tested for use in the student's multipurpose laboratories. Service laboratories should also be provided so that specimens collected in the course of clinical or field work can be processed and analysed.

Clinical sciences. This division is concerned primarily with the diagnosis and treatment of disease in the individual and increasingly with care of the family. In principle, it will include disciplines such as general or internal medicine ; the system specialties—psychiatry, neurology, cardiology, endocrinology, dermatology, etc. ; general surgery, including traumatic surgery, anaesthesia and the major surgical specialties ; and mother and child care—paediatrics, obstetrics and gynaecology, and welfare of the pregnant woman and the young infant. Such a grouping of disciplines could be accommodated in a centre where the clinical training of medical students leads to general medical practice.

The basic facilities for teaching, service, and research should include an ambulatory care unit, designed for primary health care for the community, with basic medico-surgical facilities, consultancy services, and facilities for emergencies. The teachers of the clinical disciplines, and others concerned, should organize an ambulatory service in which students can learn basic clinical skills and clinical research methods.

Whenever possible the existing inpatient and outpatient care facilities should be used with the necessary adaptations in order to facilitate the achievement of the educational objectives defined for the various categories of students.

Medicosocial sciences. The principal disciplines in this division are human ecology, which is the scientific basis of preventive and social medicine, and health services organization, which is concerned with the development of methods for health care delivery. Staff and students belonging to these disciplines use epidemiological methods as their basic tool. Teachers of epidemiology and biostatistics, demography, medical sociology, dietetics and nutrition, environmental sanitation, health education, public health organization, occupational health, and legal forensic medicine will find common ground in this division of medicosocial sciences.

4.3.1.2 *Special health care facilities.* In addition to the facilities described above, the teachers and students of a centre for health sciences should have access to the following :

— dispensaries and health centres that serve the community (with which there should be a special relationship) ;

— a well organized general hospital with medical, surgical, paediatric, obstetric, gynaecological, and psychiatric beds, and with adequate diagnostic, laboratory, and radiological facilities ;

— specialized laboratory, clinical, and epidemiological services, either in the same institution or in different establishments.

4.3.2 *Teaching hospital*

Where hospital facilities in the community are unsatisfactory it may be decided to build a new teaching hospital. In such cases, the recurrent costs and staffing requirements should be very carefully considered. The establishment of such a hospital without due consideration might well undermine the objectives of the medical school and of the health care delivery system in general, through excessive recurrent expenditure and heavy demands on professional staff.

A teaching hospital must be related to the community and must provide the kind of services the community requires. However, the general nature of the training required to produce a physician makes it inadvisable to provide specialized services such as cardiac surgery. This kind of service focuses the time and attention of staff on one aspect of hospital care and channels much needed funds into one kind of development to the detriment of others, resulting in an unbalanced hospital service.

It should be the main aim of the teaching hospital to teach and improve history-taking, physical examination, diagnosis, and management without undue resort to highly specialized techniques that are usually not available when the student leaves the teaching hospital. Nevertheless, the growing importance of scientific research in medicine requires extensive laboratory and radiological services and these may be required if they are not available elsewhere in the country.

The majority of patients in a country are treated in outpatient clinics or in the offices of practitioners. With modern advances the need for hospitalization for investigation and treatment is not as great as before and the rising hospital costs place a limit on the number of inpatient beds. Furthermore, the excellent teaching material provided by outpatients and the type of training required makes it necessary to develop a policlinic and to designate it as a major teaching area of the hospital. The policlinic should be planned and organized to provide :

(*a*) a full range of services for early diagnosis and treatment, both curative and preventive. Adequate waiting space and number of examination rooms should be provided and an appointments system should be developed to help reduce waiting time ;

(*b*) a reasonable continuity of patient care so that as far as possible the patient has his " own " doctor ;

(*c*) an adequate follow-up of patients with chronic diseases such as diabetes mellitus, hypertension, etc ;

(*d*) facilities for teaching and health education, for example, conference rooms and exhibition areas.

The policlinic, which should have simple laboratory and X-ray facilities for diagnosis, must be easily accessible to the public. From a large well-ventilated reception area, patients should be referred to adjoining clinics which are of a standard or " common user " type, except for specialized clinics such as those for ophthalmology and otorhinolaryngology. The number of examination rooms required will depend on the teaching programme and the maximum number of patients expected to attend the

policlinic. The laboratory should have facilities for procedures such as blood counts, urinalysis, and sputum and stool examinations.

A rehabilitation unit should adjoin the policlinic, providing easy access for outpatients, and should provide not only physical medicine but also facilities for psychosocial adjustment, vocational evaluation, and retraining.

An accident and emergency unit should be provided to care for patients who are the victims of accidents including injuries, burns, poisoning, and sudden illness. Its facilities should be available on a 24-hour basis for those critically ill and for injured persons requiring immediate resuscitation and treatment. This unit should include standard and stretcher examination rooms, a resuscitation room, a fracture room, an emergency theatre, and an observation ward. As patients may require radiological examination and major operations, the accident and emergency unit should adjoin the radiodiagnostic unit and the operating theatre suite should preferably be on the same floor. It is important that ambulances should have direct and easy access to the emergency unit. The unit should also be planned to receive a large number of patients in the event of a major disaster.

The extent of the inpatient accommodation required in a teaching hospital will vary from country to country. It will depend on the maximum size of the entering classes of students as well as on the policy and arrangements made for hospitalization of patients, and the network of different types of health facility available in the country. However, a figure of 5–8 beds per student could be considered reasonable, in accordance with the accumulated experience of countries with established teaching hospitals. The rate of occupancy and turnover of patients are important factors and have to be taken into consideration.

All inpatient accommodation should be grouped to permit concentration of the necessary services. There are several advantages in having a standard nursing unit but the most important feature should be flexibility; over the years this will permit reallocation of available beds among the different divisions.

All operating rooms should be grouped together as a single suite to provide for flexibility and better use of the operating and ancillary rooms. Appropriate ventilation and high standards of hygiene are then more easily and effectively provided. There should be a single radiodiagnostic unit generously planned to provide for the kinds of investigation required in a general hospital.

The continuing development of laboratory methods requires that the clinical diagnostic laboratory be provided with ample space for future expansion. It should be so located that specimens from the inpatient area can be easily and rapidly delivered.

The development of central services for sterilization, food preparation, and laundry should be in line with modern hospital planning. Such arrangements will reduce significantly the space required in the wards for ancillary equipment.

The technical services buildings, containing kitchen, laundry, boiler house, generator station, and maintenance and repair shops, should be situated away from the main hospital building but within easy access.

Residential accommodation providing quick and easy access to the hospital is required for students during the clinical phase of their undergraduate programme. This will enable them to undertake clinical work after normal working hours and to attend to emergencies at odd times. For the same reasons, interns are provided with accommodation within the hospital or in the vicinity.

4.3.3 *Equipment*

Equipment for teaching purposes should facilitate the achievement of the instructional objectives ; in principle it should be standardized and simple ; spare parts should be readily available, and it should be easy to maintain and repair locally. There should be a continual inventory of use, in order that equipment at one time of urgent importance but later disused can be suitably disposed of.

4.4 Financial considerations

The capital cost estimates should include the costs of acquiring the land, clearing and landscaping the site, constructing the roads and the buildings, installing the electric power plant and fixed and movable equipment, and a provision for architect's and engineer's fees and for unexpected construction problems. Even if land is provided and building materials and equipment are available locally, the capital costs are considerable and in developing countries most materials and equipment have to be imported, thus adding to the cost. The financial estimates should take into account the following factors : construction is often delayed because materials and fixed equipment do not arrive in time for various reasons, including delay in production or shipment ; foreign architects and engineers are often appointed, and the dearth of skilled artisans and workers delays the medical school building programme ; on the other hand, labour costs are lower in a developing country ; care should be taken not to underestimate building costs.

5. SEQUENCE OF STEPS IN PLANNING

5.1 The attempt to develop a planning timetable

A model timetable of planning and development activities would be very valuable for the planning authorities to copy. Unfortunately it is not possible to give such a model. Comparison of the timetables of development of new medical schools in Calgary (Canada), Brasília (Brazil), Beersheba (Israel), Kuala Lumpur (Malaysia), and Yaoundé (United Republic of Cameroon) disclosed that the lengths of time devoted to the different activities varied widely. There were, however, fairly common sequences of planning and development activities. In the following section of the report an optimal sequence in the planning of major steps is presented for the use of readers who may wish to review their own design or plan. It is a synthesis of several approaches to the solution of a most intricate series of related problems; obviously the sequence may be varied to suit individual circumstances. The planning process is illustrated diagramatically in Annex 2.

5.2 Model planning sequence

5.2.1 *Assumptions*

(i) That the role of the founding dean includes great responsibility, full accountability, and the opportunity to use initiative.

(ii) That the dean is accountable to a development committee having members representative of the ministries, health agencies and academic institutions concerned.

(iii) That the members of the development committee are able to make immediate decisions (as representatives of their institutions or agencies) without reference to their agencies.

(iv) That it may not be possible to recruit adequate planning, designing, and construction staff within the country concerned.

(v) That the sponsoring government is stable in its fiscal policy.

5.2.2 *Stages in planning*

Stage I. The sponsoring government designates a small number of senior individuals of known integrity as a planning commission to study the feasibility of establishing a medical school to meet specifically stated national or regional needs. A small budget for travel and consulting services is provided, and a date is designated for completion of a report on the feasibility study. The basic query of the study is not to be whether such a

school can be built but whether a school can be built that meets the required standards and the stated needs. This stage ends with the submission of the report to the government. Thanks should be tendered to the commission, but it should not be dismissed. Its members should be ready later to assume other functions in the next stage of development.

Stage II. The government now declares the commission a development committee and members are added to ensure representation of the ministries, agencies, and academic institutions concerned. The committee is provided with a planning and development budget, a small office and secretarial staff, and is requested to produce (*a*) a plan derived from the feasibility study, and (*b*) a nomination for the post of founding dean.

The committee begins its search for a dean while developing guidelines for the objectives of the institution based on the national or regional needs. The committee interviews each candidate for the deanship and explains the objectives of the institution. Factors effecting the development of the schoo' are openly discussed so that each candidate has a clear understanding of the opportunities and responsibilities of the deanship.

This stage is concluded with the selection of a founding dean.

Stage III. The dean takes up his appointment and begins to recruit senior teaching staff and supporting staff. With this nucleus of staff he develops the planned philosophy, policies, purposes, and broad curriculum outline of the school, constantly checking these against the institutional goals previously developed. Staff members are divided into (*a*) a budget committee—to study and design the financing of the project ; (*b*) a curriculum committee—to plan the education programme : a portion of this committee may be split off to become the first admissions committee to establish the admissions and selection criteria and procedures ; (*c*) a building committee—to determine building and equipment needs, and develop plans to meet these needs ; (*d*) an academic appointment committee—to draw up the criteria and procedures for academic appointments ; and (*e*) a health care services committee—to determine the health needs of the community for teaching purposes, and subsequently to assist the dean in planning negotiations with other health agencies to obtain further teaching staff and teaching facilities.

Each of these committees is responsible through its chairman to the dean, who may take the chairmanship of any committee if he so wishes. As projects are completed by these committees, reports are submitted to the dean on these projects, his decision on the matters is given, and he asks the development committee to endorse his decisions. Individual committee members whose agencies are involved in a particular project communicate the decisions to their agencies and they cooperate in the

execution of the work. Thus the development committee becomes a review board for the work of staff committees within the school, but its function is only to advise the dean. The dean alone is responsible to the government.

During this stage, external consultants are often employed and trips are made to other institutions to assess the suitability of the plans.

Stage IV. Plans have progressed to the point where facilities and equipment are available (the supply of equipment is phased so that buildings may be occupied in stages) and the first entering class is selected. The school opens, teaching begins, and new teaching staff are appointed.

Stage V. The school is formally opened. The building plant is accepted *in toto* by the host institution, a continuing budget is established by the government, and the development committee is dissolved with appropriate acknowledgements for its services. The school begins to monitor its work.

Stage VI. The first class of students graduates. The school launches a longitudinal study of its graduates. The work of academic committees becomes more routine, with periodic revision being the order of the day. The school is informed by the government that it will be expected to increase class size beginning with the next entering class.

6. EVALUATION AND PLANNING FOR EXTENSION

6.1 Evaluation of the medical school

The development of a new medical school requires that some evaluation be made of its effect on both the level of medical practice and the level of higher education in the country. Both should be improved as a result of the establishment of the school.

The measurement of the quality of medical practice in a country or region is of such complexity and still such a very young science that firm recommendations cannot be given at this stage. The evaluation of the educational programme of the medical school is, however, more straightforward.

6.1.1 *Evaluation of the educational programme*

6.1.1.1 *External methods.* There are several ways in which success can be gauged. The first is the standing of the school in the eyes of the public. This standing is best judged by the quality of the students applying for admission : if the school has a good reputation, the students will be of high calibre. Another index is the degree of acceptance of the graduates by the profession. If colleagues are prepared and willing to work closely

with them, if other health professionals also work well with them and seek their counsel, then the programme producing such graduates is seen as a good programme. A further measure is the reputation of the school for entertaining new ideas in teaching, practice, and research, and for providing leadership.

By far the most common form of evaluation of a medical school, however, is an internal audit of the effectiveness of its programme.

6.1.1.2 *Internal methods.* The primary purpose of internal evaluation is the provision of information to the administration so that decisions can be made regarding students (professional development, academic promotion, vocational guidance), teaching staff (promotion, changes in teaching responsibilities, career development); and courses (changes in objectives, learning experiences, sequence of activities, questions of validity and appropriateness of content). Thus the programme needs to be reviewed and improved periodically.

Students. Studies of their performance are generally conducted by a committee of the teaching staff. The information gained in these studies is used to provide feedback to individual students, so that they may become more effective in their professional work. It is also used by the committee to determine the degree of attainment of the instructional objectives. Records are kept and the student's progress is noted from time to time. The ultimate goal of this work is the identification of the professional strengths and weaknesses of each student at any time, in order that he may capitalize on the former and correct or compensate for the latter. The information collected is on the performance of each student in written examinations, in interviewing and examining patients, in performing minor procedures and in working with patients and their families. Particularly relevant data include information provided by nurses and other health professionals and by patients and their families. All the information collected should be shared with the students and their advisers for their mutual benefit.

Concerning written examinations, it is essential that the performance by the whole class of students in each test should be analysed. The methods of analysis are well known and described elsewhere.[a] From such an analysis it is possible to identify parts of the curriculum that have not been well learnt by the whole class, and that might not have been well taught.

Teaching staff. Studies of their performance are usually made by the committee responsible for the curriculum, by department heads, or by the

[a] CHARVAT, J., MCGUIRE, C. & PARSONS, V. A review of the nature and uses of examinations in medical education. Geneva, World Health Organization, 1968 (Public Health Papers, No. 36).

staff of the dean's office. The common purpose is to enable the administration to determine the current level of staff performance—both as individuals and as a group. Three areas of study are noted. Research capability is determined by noting the reaction of others to articles and books written by the staff member and by the degree of success of his research programme, particularly if it requires external funding. Teaching proficiency is determined by analysing the reactions of colleagues and students to the instruction provided by each staff member. Instruction here is defined broadly to include preparation of teaching and testing materials, as well as actual teaching by lecturing, leading group discussions. Service capability is determined by reviewing the records of community projects, clinics, etc., where the staff member has served. Referral patterns should also be an indication of the professional regard or reputation earned by the staff member.

Each department head should assume the responsibility of reviewing the work load and quality of work of each member of his staff, and should help him in making plans for the improvement of his performance as a member of the academic staff.

Courses. It is inevitable that courses offered by the staff, regardless of the methods of instruction used, will require constant revision. Historically, instructors have always felt the need to improve their own work and some formal process of review should be established to accomplish the general purpose of course improvement. This is distinct from the improvement of instructors; here the emphasis is on course planning and execution. The process described below can be initiated gradually, using data from first one source and then others, until enough teaching staff are involved to make the process effective.

A small group of teaching staff, separate from the members of the curriculum committee, is assigned the task of evaluating the effectiveness of the curriculum. They study each course separately, using as data for their discussions:

(*a*) A report from the head of the teaching team responsible for the course, including observations on particularly effective or ineffective exercises. The report should include recommendations for further action; suggestions for revision of objectives, learning experiences, and content of the course; and finally recommendations for adjustment in teaching staff.

(*b*) A detailed analysis of the performance of students as a group in different types of evaluation (e.g., tests, problem-solving exercises) relating to the objectives of the course.

(*c*) A summary of student recommendations concerning the revision of the course prepared by the class of students most recently completing it.

(*d*) A compilation of suggestions solicited from members of the teaching staff of the school for revision of the course.

(*e*) The results of any studies conducted by members of the faculty in response to particular concerns regarding preferred methods of teaching, learning, or evaluation (e.g., results of a study showing that for a course on renal function a programmed text developed by a staff member is more effective than a series of lectures by the same staff member).

The recommendations made by this group for the changes in each course are sent to the dean for transmittal to the curriculum committee.

As mentioned earlier, the professional competence of graduates of the total programme should also be studied, to determine any need for revision in the total curriculum. (The factors influencing curriculum were discussed on pp. 18 and 19 and are summarized in Fig. 1.)

6.1.2 *Departments of educational studies*

An increasingly common aid to the work of the curriculum and evaluation committees of a medical school is an office or department of educational studies which has these tasks as its terms of reference. Where the services of such a unit are not available locally the establishment of national or even regional units should be encouraged. Such units could be developed in conjunction with activities such as the WHO teacher training centres.

6.2 Extension of the medical school

There are many methods by which the programme of a medical school and its impact on the community may be extended, and the Group discussed the following aspects of this problem.

6.2.1 *Increasing the number of students*

The founding dean should recognize at an early stage that, regardless of the predetermined maximum class size for any year of the curriculum of the medical school, there will very soon be pressures to increase that maximum by anything from 10% to 100%. Assuming that quantitative extension is a legitimate challenge to the institution, especially in developing countries, the question becomes that of determining how to prepare the institution for increased intake.

An essential principle is that of phasing. A new dean with a recently recruited teaching staff will simply not be able to manage an initial class of full size ; nor will the facilities meet the demand since in all probability they will be temporary or unfinished, if the school has been established with some

haste. A good principle to follow is that a first entering class should be only 25–50% of the planned yearly intake. Since many scheduled teaching sessions will be missed in the first few months of operation because of logistic problems, it is better to have the first class fairly small so that the situation can be easily remedied. Also, new staff members may feel particularly vulnerable when teaching large classes until they gain full confidence and achieve their full effectiveness. The dean needs to have a clear picture of the development of the whole school at any time, and this will be facilitated if student numbers are increased progressively.

6.2.2 *Increasing the number of teaching staff*

In view of the above comments, the founding dean will need to embark on recruitment and staff development programmes within a few weeks of his appointment. The system of appointing visiting professors would enable him to benefit from the assistance of experienced staff from the country itself or from outside the country for a few months or years until local staff members can be recruited. Academic qualifications should carry considerable weight in the selection of visiting staff, but the dean should also be most thorough in ensuring that the educational philosophies and institutional goals of his school are not only clearly understood but accepted and followed by candidates for visiting staff appointments.

Both visiting and regular appointments (for, say, three years or more) should have initial probationary periods. Visiting staff who are interested only in reproducing their original academic setting or environment, or who would find a new school on a distant shore an ideal vehicle for launching their own personal academic ideas are to be particularly avoided.

It is recognized that there are many members of the academic community in developing as well as in more developed nations who take a strong interest, and have an excellent record, in international service. In these times of greatly improved health care in some countries, teaching staff beyond retirement age in their own countries are a particularly valuable source of help.

6.2.3 *Continuing education for all categories of health personnel*

Following the increasing involvement of a new medical school in the health care delivery system, particular attention should be paid to continuing education for health personnel. All categories of health personnel should be catered for, including those working in health facilities under the responsibility of both the medical school and the health authorities. The results of evaluation studies concerning the scope and quality of health care delivery should be used as a basis for designing training programmes. Close

collaboration with health authorities is essential. The training programmes will be diversified and should be suitable for the different categories of personnel forming the health teams.

6.2.4 *Extension of educational programmes*

In practice, it has been found that the number of educational programmes offered for the different categories of health personnel increases gradually, to include, for example, basic courses for pharmacists, laboratory technicians, and nurses, and perhaps also postbasic or postgraduate courses for the above types of personnel. In some instances it has been considered necessary to develop special educational programmes, for instance, for health administrators and health economists, physiotherapists, occupational therapists, medical record librarians, medical secretaries.

7. SUMMARY OF RECOMMENDED GUIDELINES FOR THE PLANNING OF SCHOOLS OF MEDICINE

(1) The decision to start a medical school is usually based on the desire to provide better health coverage and improved health services for the population by producing an adequate number of well trained physicians and other health personnel to meet the community health needs and demands.

(2) Other reasons include the introduction of innovations in the education of health personnel, in the local environment, or in the philosophy of the health team approach.

(3) In order to ensure joint training of health personnel it is recommended whenever possible and feasible that an integrated health sciences centre should be established in preference to separate schools of medicine, nursing, etc.

(4) The institutional goals should be as follows: (*a*) to assume responsibility for the training and continuing education of physicians and other health personnel; (*b*) to participate in the planning and delivery of health care, including accepting responsibility for the comprehensive health care of a geographically defined area of the country; and (*c*) to engage in and promote biomedical, clinical, and other community-oriented research, including studies in health manpower planning.

(5) Before a final decision is made on the establishment of a medical school, it is recommended that a planning commission should undertake a careful feasibility study with particular reference to the availability of human,

material, and financial resources, not only for initiating the project but for its long-term maintenance.

(6) It is recommended that educational objectives should be formulated at an early stage, and that these should be based upon the tasks to be performed by the students at the end of their training. These objectives should be expressed in behavioural terms—attitudes, skills, and knowledge.

(7) The administrative structure of the medical school or health sciences centre should be related to the institutional goals but flexible enough to permit adjustments to meet the changing needs of society and advances in medical science and technology.

(8) It is strongly recommended that the first or founding dean should be a national of the country—a physician with broad experience in the field of health, with university administrative and teaching experience; a man of integrity with personal qualities and attributes that command the respect of his colleagues and the community.

(9) The founding dean should be assisted by a development committee which should have among its members representatives of the university, ministries of health, education, development planning, social security, finance, etc. The committee will be mainly concerned with the development of the physical plant, and with budgetary and financial matters.

(10) In order to promote the academic objectives of the medical school, it is preferable that the school forms part of a university, whilst maintaining strong affiliations with the ministry of health and other agencies responsible for health care delivery.

(11) In view of the varied activities of the medical school (teaching, research, and service), it is preferable that the school has not only adequate financial resources but also budgetary autonomy.

(12) Appointment of academic staff should be the responsibility of an academic appointments committee on which the medical faculty should be well represented. In respect of clinical positions, representatives of the health care delivery services should be included. In the selection of academic staff, due regard should be given to teaching and service and not only to research. Consideration should be given to the appointment of physicians practising in the community, general practitioners, and community health physicians in order to fulfil specific roles. Although senior academic appointments are usually for life it is recommended that administrative appointments (deans, heads of departments) should be for fixed periods of time.

(13) Entry to medical school should be by selection. The selection procedure should reflect not only the academic achievements of the candidates, but other personal attributes that are considered desirable in a doctor. The student body of the medical school should as far as possible reflect the various population groups of the community it serves.

(14) The evaluation procedures should be established as early as possible. They should measure as far as possible the quality of the graduates and the impact of the medical school on health care delivery; and they should involve both staff and students. The possibility of creating a special unit responsible for medical education and evaluation should be considered during the further development of the school.

(15) While the medical school is being planned, the possibility of extension should be borne in mind—to increase the student numbers, to create additional teaching programmes for different health professions, to conduct continuing education, and to increase the staff and extend the service and research activities in the community.

Annex 1

EXAMPLE OF INSTITUTIONAL GOALS

Upon completion of the formal course of studies, a graduate of an M.D. programme at a centre for health sciences should have acquired or developed knowledge, abilities, and attitudes so that he will be able to :

1. Perform professional services within a community health care system compatible with the overall policies of the centre.

   (*a*) Identify and define present and future community health problems and work to resolve such problems by the planning, implementation, and evaluation of preventive or remedial programmes.

   (*b*) Use clinical skills, knowledge, original observations, and appropriate records to identify, diagnose, manage (prevent, refer, or treat rationally), and follow up the health problems of his patients, taking into account the physical, psychological, and sociocultural aspects.

   (*c*) Perceive the health care system as one major factor, but not the only one, among the resources that help to promote good health.

   (*d*) Utilize other specialized resources of the health care system while maintaining overall responsibility of care for the patient.

   (*e*) Work as a leading partner in a health care team.

   (*f*) Educate the population and motivate them to improve their health.

2. Continually increase his level of competence.

   (*a*) Take part in postgraduate training (residency programmes, specialization, courses, etc.) and teaching (students and colleagues).

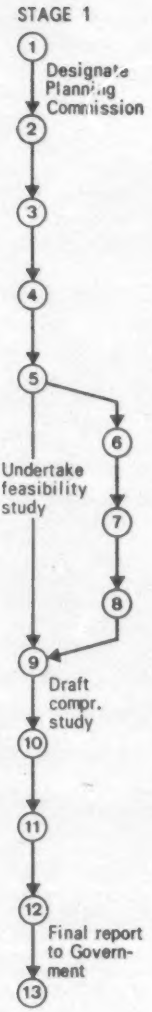
   (*b*) Periodically evaluate his professional activities, recognize his educational needs, select appropriate learning resources, and evaluate his progress.

3. Aid the development of the health sciences by engaging in teaching and research, and seeking solutions to new health problems of his patients, community, or health care system.

4. Maintain and develop the personal characteristics and attitudes required for professional life, such as personal integrity, sense of responsibility and dependability, and ability to relate to, communicate with, and show concern and respect for his patients and colleagues.

Annex 2

VERTICAL ACTIVITY NETWORK WITH IDENTIFICATION OF KEY PLANNING ACTIVITIES [a]



1–2 **DESIGNATION OF A PLANNING COMMISSION BY THE GOVERNMENT**
Representatives of the following bodies should participate: health and educational authorities; development and planning agencies; finance; medical and other professions; leaders of the community; international institutions (if desired).

2–3 **ESTABLISH TERMS OF REFERENCE FOR THE PLANNING COMMISSION**

3–4 **ACQUIRE FACILITIES FOR UNDERTAKING THE PLANNING ACTIVITIES**

4–5 **INFORMATION GATHERING**

5–9 **UNDERTAKE FEASIBILITY STUDIES**
The study should aim at the implementation of the national health policy, based on information concerning: socioeconomic factors; demography; morbidity; mortality; available human, financial, material resources; health service delivery system, performance; health manpower studies, needed "mix"; long-term projection in the field of health.

5–6 **DETERMINE THE NEED FOR SUBCOMMITTEES**
The planning commission may, during its feasibility study, need to create subcommittees regarding: general educational philosophy; institutional goals; finance; physical facilities; recruitment of staff; manpower studies, etc.

6–7 **APPOINT SUBCOMMITTEES**

7–8 **UNDERTAKE SUBSTUDIES**

8–9 **SUBMIT REPORTS ON SUBSTUDIES TO THE PLANNING COMMISSION FOR CONSIDERATION AND APPROVAL**

9–10 **PREPARE A DRAFT COMPREHENSIVE REPORT FROM THE PLANNING COMMISSION**

10–11 **SUBMIT THE DRAFT (OR PARTS OF IT) TO DIFFERENT INVOLVED BODIES**

11–12 **PREPARE FINAL COMPREHENSIVE REPORT**

12–13 **SUBMIT FINAL REPORT TO THE GOVERNMENT DECISION-MAKING AUTHORITY FOR CONSIDERATION AND APPROVAL**

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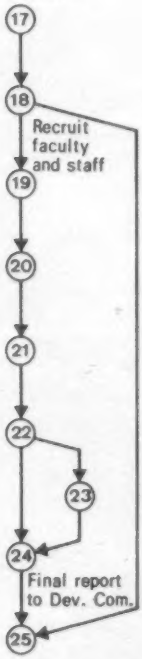
[a] ○ = event: → = activity.

STAGE 2

14–15 SELECT AND APPOINT A DEVELOPMENT COMMITTEE

15–16 SELECT AND APPOINT THE FOUNDING DEAN

STAGE 3



17–18 PREPARE WORK PLAN FOR THE DEVELOPMENT COMMITTEE
Including the following aspects:
development of physical plant; budgetary and financial matters; relationships with other institutions.

18–19 RECRUIT AND SELECT A NUCLEUS GROUP OF SENIOR TEACHERS AND SENIOR SUPPORTING STAFF

18–26 CONTINUOUS ADVISORY ACTIVITIES OF THE DEVELOPMENT COMMITTEE

19–20 NUCLEUS GROUP DETERMINES TERMS OF REFERENCE AND PLANS OF ACTION
Including consideration of the following matters:
developing of planned educational philosophy policy; purpose and broad curriculum outline of the school; structure of the school; facilities and equipment.

20–21 DETERMINE THE NEED FOR SUBCOMMITTEES: ESTABLISH TERMS OF REFERENCE
Subcommittees might be useful regarding:
budget; building, academic recommendations, and other health facilities (field); curriculum; admission procedures; student selection; academic appointments; health care services.

21–22 PLAN THE WORK OF SUBCOMMITTEES

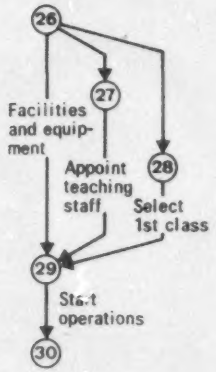
22–25 SUBCOMMITTEE ACTIVITIES

22–23 DETERMINE THE NEED FOR EXTERNAL CONSULTATIONS: ESTABLISH TERMS OF REFERENCE
External consultations could be useful especially regarding:
building; curriculum; health care services.

23–24 EXTERNAL CONSULTATIONS

24–25 SUBMIT DIFFERENT SUBREPORTS TO THE DEVELOPMENT COMMITTEE FOR CONSIDERATION AND APPROVAL

STAGE 4



26–29 IMPLEMENT PLANS FOR FACILITIES AND EQUIPMENT

26–28 ESTABLISH STUDENT RECRUITMENT PROCEDURES

27–29 SELECT AND APPOINT TEACHING STAFF

28–29 ADVERTISE, RECRUIT, AND SELECT FIRST CLASS

29–30 START OPERATIONS

STAGE 5

31–32 FORMAL OPENING OF THE SCHOOL

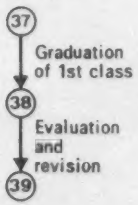
32–35 MAKE ARRANGEMENTS FOR MONITORING OF THE SCHOOL BY THE DEAN AND HIS OFFICE AND TEACHING STAFF

33–34 ESTABLISH CONTINUING BUDGET

34–35 DISSOLVE DEVELOPMENT COMMITTEE

35–36 PERIODIC EXTENSION PLANNING

STAGE 6



37–38 GRADUATION OF FIRST CLASS

38–39 PLAN FACILITIES FOR "BUILT-IN" EVALUATION AND PERIODIC REVISION OF THE MEDICAL SCHOOL AND THE EDUCATIONAL PROGRAMME

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